FEASIBILITY STUDY

US 601
From Monroe to South Carolina State Line
Union County
FS-890010
(R-2616)

Prepared by
Planning and Research Branch
Division of Highways
N. C. Department of Transportation

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Date

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US 601
From Monroe to South Carolina State Line
Union County

I. DESCRIPTION

This report presents a preliminary study of possible improvements to the subject road. The study covered a 12.6-mile portion of US 601 from US 74 in Monroe to the South Carolina State Line (see Figure 1 for location). The study was made in response to a request of the Program and Policy Branch of the Division of Highways.

II. EXISTING CONDITIONS

Route Characteristics

The studied route has several functions. The route forms a part of the arterial system in the Functional Classification System, provides radial access into Monroe from the southern area of the county, and serves as a traffic feeder of US 74.

The subject portion of US 601 has a 24-foot pavement with 6-foot shoulders. The existing road's horizontal alignment is virtually straight. Only two noticeable curves of up to 6 degrees exist at the Monroe end of the study section where the speed limit is reduced to 45 MPH due to existing development. The vertical alignment is generally fair, with maximum grades of 7 percent. It has several short sections of undulating design limiting safe operating speeds to as low as 35 MPH. Overall, the existing facility is in good condition.

One concrete bridge is in place along this route and in fair condition. Constructed in 1949, the bridge crosses Richardson Creek near Monroe with a length of 169 feet and a clear roadway width of 26 feet. Sufficiency rating for the bridge is 67, compared to a rating of 100 for a new bridge.

Roadside development is predominantly moderate density residential with scattered commercial uses. Development increases as US 601 approaches Monroe.

Traffic Volumes, Capacity, and Accident Experience

Present traffic volumes on the studied highway range from 6500 vehicles per day near the South Carolina State Line to 12,000 vehicles per day at US 74. A significant percentage of these traffic volumes constitute heavy truck traffic. The truck composition is 15 percent TTST and 6 percent dual tired trucks. Traffic projections for the year 2010 indicate 11,000 and 20,000 VPD at the above respective locations.

Capacity studies show that most of the studied section of US 601 is operating below desirable level of Service C, allowing average travel speeds of 50 MPH. Increasing traffic volumes will reduce the level of

Service to E (speeds of 45 MPH) at the end of the planning period. To maintain level of Service C, which is consistent with the function of the road, additional lanes will be required immediately.

Accident records for the period of January, 1985 through December, 1988 revealed a total of 194 accidents on the subject facility. The accident experience produced an accident rate of 1.41 accidents per million vehicle-miles, which is less than the statewide average rate of 1.87 accidents/mvm for two-lane US routes in 1988. The major pattern of accidents was the rear-end collision type.

Adjoining Section in South Carolina

Plans are underway by the South Carolina Department of Transportation to improve SC 151 between Pageland and Darlington (see Figure 2), which is the major travel route for the US 601 traffic in North Carolina. (US 601 in South Carolina is considered to have minor traffic importance). Their plans are to widen the existing two-lane facility to a four-lane divided section. According to a South Carolina official, construction is scheduled to begin in 4 to 6 years. Portions, of SC 151 at Pageland and between Hartsville and Darlington have five-lane undivided roadways. The remaining two-mile portion of US 601 from the Pageland Bypass to the North Carolina State Line is not included in the South Carolina Department of Transportation's current highway improvement program.

III. STUDIED IMPROVEMENTS AND COSTS

The logical improvement to US 601 is widening of the existing road. The good horizontal alignment and condition of the existing road coupled with moderate roadside development support the desirability of utilizing the existing facility in the ultimate improvement of US 601. Complete or partial relocation of US 601 was not given serious consideration due to the cost involved.

Recommended cross sections for improvement of US 601 to a multilane facility are as follows:

Section A (US 74 to SR 1003, 1.1 miles) - 64 feet face to face of curbs on an estimated 100-foot right of way. An urban type section is appropriate for this area of increased development and reduced speed limit. Most of the widening is anticipated on the east side of the existing road. The existing bridge over Richardson Creek should be replaced with a new and wider structure at the same site.

Section B (SR 1003 to South Carolina State Line, 11.5 miles) - Two 24-foot pavements separated by a 30-foot grassed median with shoulders on an estimated 200-foot right of way. Placement of additional lanes is anticipated on the west side of the entire length of this section. Approximately one-fourth of the existing road is estimated to require adjustment to the vertical alignment.

Total estimated cost of the studied improvements is as follows:

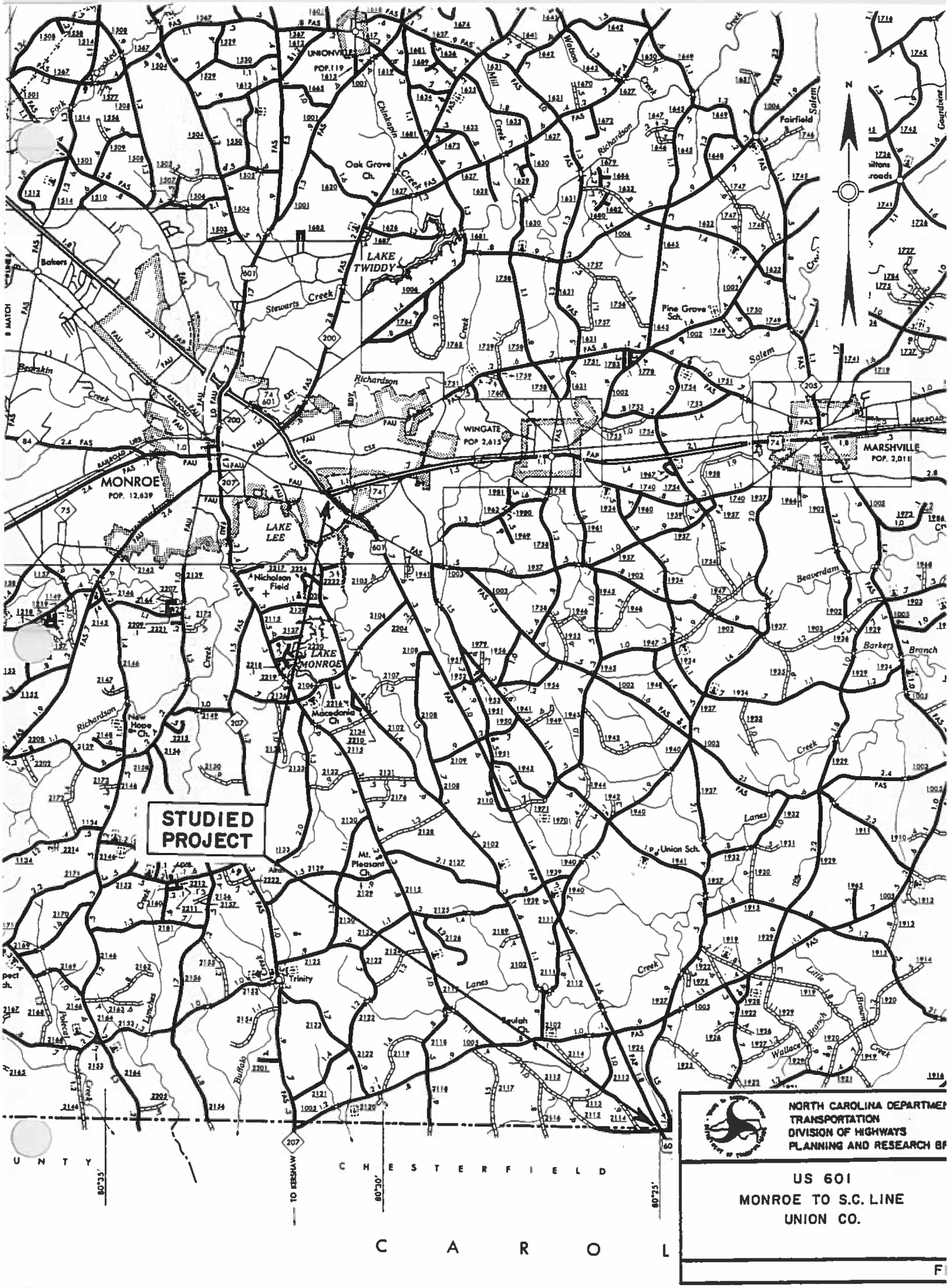
Roadway		$16,330,000
Bridge		870,000
Right of Way		5,600,000
	TOTAL	$22,800,000

V. CONCLUSIONS

The US 601 segment between Monroe and the South Carolina State Line is carrying traffic volumes beyond its capacity to accommodate at the desirable level of service. If traffic volumes grow as predicted, a serious capacity deficiency will result before the end of the planning period. The capacity deficiency can only be eliminated by widening the road to a multilane facility.

The improvement of US 601 merits consideration for possible inclusion in the Transportation Improvement Program.

RGD/sdt



STUDIED PROJECT
MONROE
POP. 12,639
WINGATE
POP. 2,615
MARSHVILLE
POP. 2,011
UNIONVILLE
LAKE TWIDDY
LAKE LEE
LAKE MONROE
Nicholson Field
Oak Grove Ch.
Pine Grove Sch.
Fairfield
New Hope Ch.
Macedonia Ch.
Mt. Pleasant Ch.
Union Sch.
Beulah Ch.
Trinity
Stewarts Creek
Richardson Creek
Beaverdam
Salem
Lanes Creek
Barkers Branch
Wallace Branch
Bearskin Creek
C H E S T E R F I E L D
C A R O L
TO KERSHAW
80°35'
80°30'
80°25'
NORTH CAROLINA DEPARTMENT
TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH B
US 601
MONROE TO S.C. LINE
UNION CO.

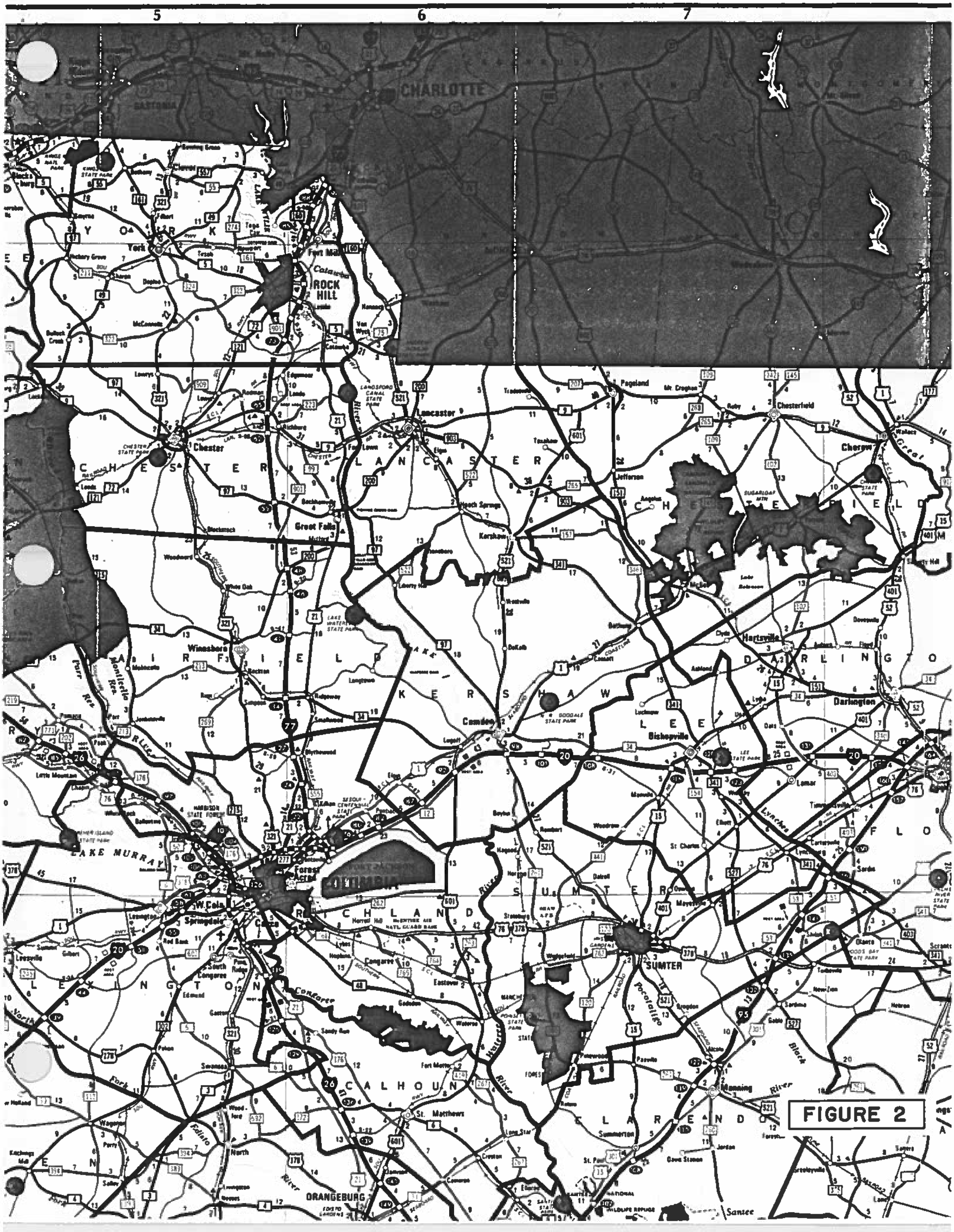

5
6
7
CHARLOTTE
ROCK HILL
Fort Mill
York
Chester
Lancaster
Pageland
Chesterfield
Cheraw
Kershaw
Great Falls
Winnsboro
Camden
Bishopville
Hartsville
Darlington
Lamar
COLUMBIA
W. Cola
Springdale
Cayce
LAKE MURRAY
SUMTER
Manning
St. Matthews
ORANGEBURG
Summerton
Santee
Y O R K
C H E S T E R
L A N C A S T E R
K E R S H A W
L E E
S U M T E R
C A L H O U N
D A R L I N G T O
Congaree
Wateree
River
Black
Lynches

FIGURE 2